

Description of the Amendments to the Drawings:

Please refer to the Replacement Drawing Sheets and the New Drawing Sheets, attached to this paper.

Sheet 1 of 12 is a replacement sheet. The handwritten "FIG. 1" designation has been replaced by a typewritten designation. Optical axis 8 has been added. Transmission grating 9 has been added. A schematic representation of optical detector 15 has been added. A schematic representation of LED or Laser Diode Light Source 14 has been added.

Sheets 2 - 6 are replacement sheets. The handwritten figure number designations have been replaced with typewritten designations.

Sheets 7, 8a, 8b, 8c, 8d, 9, 10, 11 and 12 are new sheets.

REMARKSRegarding the Allowable Subject Matter:

Applicants note that the Office action of December 14, 2007, indicates that claim 2 and claims 18 – 20 would be allowable if rewritten in independent form.

Regarding the Claim Amendments presented in this reply:

The amendments to the claims add no new matter. Most of the amendments merely put the claims in better form.

Claim 1 has been rewritten; the changes find support in original claim 1. The only change not explicitly recited in original claim 1 is the following limitation: “wherein at least two optical axes of the focusing optical elements are not collinear.” This amendment finds support in the specification on page 4, lines 3 – 21, and in the figures. These portions of the specification make clear that the optical axes of the focusing optical elements are parallel to the optical axis of the collimating optical element, that the focusing optical elements are arranged in rows, and that the focusing optical elements are spaced apart from each other. Applicants respectfully submit, therefore, that the limitation requiring that “at least two optical axes of the focusing optical elements are not collinear.” is well-supported in the original disclosure.

The somewhat lengthy “wherein clause” added to each of claims 9 – 15 to provide antecedent basis for the various optical fiber limitations finds support in original claim 1.

Claim 10 has also been reworded; the changes find support in original claim 10.

Regarding the Amendments to the Specification presented in this reply:

The amendments to the specification add no new matter. The paragraphs to be inserted on page 9, at indicated line 13 and on page 15, at indicated line 3 finds support in the specification:

- on page 13, lines 15 – 21 with respect to the free spaces between the focusing

optical elements, and

- on page 6, line 37 – page 7, line 12 with respect to the two optical fibers being aligned at obliquely inclined angles with reference to the optical axis of the collimating optical element.
- on page 11, lines 14 – 23 with respect to the brancher/backward coupler connected to the first optical fiber.

The replacement paragraph on page 9, indicated lines 17 – 27 finds support in the specification:

- on page 7, lines 20 – 23 with respect to the transmission grating, and
- on page 6, line 37 – page 7, line 12 with respect to the optical axis of the collimating optical element.

The other amendments to the specification merely insert reference numerals or references to figures to ensure correct correlation with the amended figures.

Regarding the Amendments to the Drawings:

The amendments to the drawings and the new drawings add no new matter. The following table summarizes where support for the illustrated features can be found in the specification.

Illustrated Feature:	Illustrated In Figure(s):	Supported in Specification:
Optical axis 8	1, 8a, 8b, 8c, 8d, 9	p. 6, line 29 – p. 7, line 12.
Transmission grating 9	1	p. 7, lines 20 – 23.
Free spaces 10	7	p. 13, lines 15 – 21.
End face 11 of the 1st optical fiber	7	p. 6, lines 29 – 35.
End face 12 of the 2nd optical fiber	7	p. 9, lines 33 – 35, and p. 6, lines 29 – 35.
Fiber brancher/backward coupler 13	9	p. 11, lines 14 – 23, and p. 6, lines 13 – 24.
LED or Laser Diode Light Source 14	1, 9	p. 7, lines 30 – 34.
Optical detector 15	1, 9	p. 5, line 39.
Pellicle 16	9	page 9, indicated lines 17 – 27

Applicants also note that the various arrangements shown in figures 8a, 8b, 8c, and 8d

find support in the specification on page 6, line 37 – page 7, line 12.

Regarding the Objections to the Drawings:

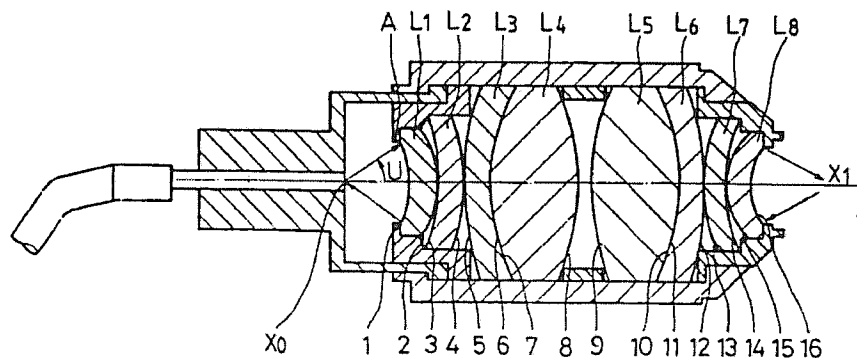
Applicants respectfully submit that the objection to the drawings under 37 C.F.R. §1.83(a) is moot in light of the replacement drawing sheets and the new drawing sheets enclosed with this paper.

Regarding the Claim Rejection under 35 U.S.C §102:

The Examiner should withdraw the rejection of claims 1, 3, 4, 6 – 9, 11, and 17 under 35 U.S.C §102(b) over *Chao et al.* (US 5,146,515).

Independent claim 1 is directed to an apparatus comprising: (i) a reflecting surface, (ii) at least one collimating optical element, and (iii) at least two focusing optical elements. Claim 1 requires that at least two optical axes of the focusing optical elements are not collinear.

The *Chao et al.* reference, on the other hand, does not disclose at least two focusing optical elements, wherein at least two optical axes of the focusing optical elements are not collinear. As can be seen in FIG. 1, reproduced below, the optical axes of lenses, $L_1 - L_8$, are all collinear.



Anticipation can only be established by a single prior art reference which discloses each and every element of the claimed invention.¹ “The identical invention

¹ See, *RCA Corp. v. Applied Digital Data Systems, Inc.*, 730 F.2d 1440, 1444 (Fed. Cir. 1984).

must be shown in as complete detail as is contained in the patent claim.”² Applicants respectfully submit that the *Chao et al.* reference does not meet this standard. Therefore, the present rejection should be withdrawn.

Regarding the Claim Rejection under 35 U.S.C §103:

The Examiner should withdraw the rejection of claims 5, 10, 12 – 16, 21 under 35 U.S.C §103(a) over *Chao et al.* (US 5,146,515).

As discussed above, the *Chao et al.* reference does not disclose at least two focusing optical elements, wherein at least two optical axes of the focusing optical elements are not collinear. Instead, the optical axes of lenses, L₁ – L₈, are all collinear. Applicants respectfully submit that a skilled artisan had no apparent reason to arrive at the present invention, which requires at least two optical axes of the focusing optical elements not to be collinear. The *Chao et al.* reference provides no hint that such a modification would be desirable.

The *Chao et al.* reference explains that “[a]s indicated in Table I [reproduced to the right], the lenses L1 to L4 are arranged in symmetrical manner with the lenses L8 to L5 so that a real image of the optical fiber terminal head can be obtained.”³ Clearly, the reference is referring to the sequence, the thickness, and the radius of curvature of the various

Lens	Lens surface	Thickness to previous surface (mm)	Radius of Curvature (mm)	Material
L1	1	0	–11.88	SF11
	2	3	–9.49	
	3	0	–26.24	
L2	4	4	–19.30	SF11
	5	0	107.79	
L3	6	3	30.63	SF11
	7	0	30.63	
L4	8	14	–30.63	BK7
	9	1	30.63	
L5	10	14	–30.63	BK7
	11	0	–30.63	
L6	12	3	–107.79	SF11
	13	0	19.3	
L7	14	4	26.24	SF11
	15	0	9.49	
L8	16	3	11.88	SF11

lenses. L4 is the same size and shape as L5. L3 is the same size and shape as L6. L2 is the same size and shape as L7. L1 is the same size and shape as L8. This symmetry is also clearly illustrated in FIG. 1.

Applicants provide this discussion regarding the “symmetrical lens arrangement” described in the *Chao et al.* reference to avoid any confusion with respect to column 3,

² *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989).

³ Column 3, lines 23 – 26 of US 5,146,515.

line 48 – column 4, line 2, which states:

In the afore-said preferred embodiment, the lens combination comprises two sets of lenses arranged in symmetry with each other. As an alternative form of the present invention, the arrangement of the lenses may be changed through non-symmetrical design according to requirement without affecting the effect of the lens combination.⁴

This portion of the reference cannot properly be construed as a teaching, suggestion, or motivation to modify the arrangement such that at least two optical axes of the focusing optical elements are not collinear. Again, the symmetry which the *Chao et al.* reference refers is the sequence, the thickness, and the radius of curvature of the various lenses. The optical axes of these lenses, $L_1 - L_8$, are always collinear, and the reference provides no apparent reason to deviate from this collinear arrangement.

For at least these reasons, applicants respectfully submit that the claimed invention is nonobvious over the *Chao et al.* reference. Therefore, the present rejection should be withdrawn.

In Conclusion:

The present application is in condition for allowance. Applicants request favorable action in this matter. In order to facilitate the resolution of any issues or questions presented by this paper, the Examiner is welcome to contact the undersigned by phone to further the discussion.

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Enclosures (1): Replacement Drawing Sheets – 12 pages.

⁴ Column 3, line 48 – column 4, line 2 of US 5,146,515.